ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF:

TDDs: 12-05-0006	PANs: 002233.0790.01RA
12-05-0007	PANs: 002233.0791.01RA
12-05-0008	PANs: 002233.0792.01RA
12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of two soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Selected Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270D) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060076 12060077

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on July 21, 2012, were extracted on July 24, 2012, and were analyzed on July 25, 2012, therefore meeting holding time criteria of less than 7 days between collection and extraction (14 days for soil) and less than 40 days between extraction and analysis.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits. All % differences were within the QC limits except indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i) perylene with high recoveries in the 7-25 calibration and hexachlorocyclopentadiene and pentachlorophenol with low recoveries in the 7-26 calibration. Positive sample results associated with the high recovery outliers were qualified as estimated quantities with a high bias (JH). Positive results and sample quantitation limits associated with the low recovery outliers were qualified as estimated quantities with a low bias (JL and UJL, respectively).

5. **Blanks: Acceptable.**

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

6. **System Monitoring Compounds (SMCs): Acceptable.**

All SMC recoveries were within QC limits.

7. **Matrix Spike (MS)/MS Duplicate (MSD)/Blank Spike (BS) Analysis: Satisfactory.**

All spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits except pentachlorophenol with a low recovery in the BS (associated positive results and sample quantitation limits were qualified as estimated quantities with a low bias [JL and UJL, respectively]).

8. **Duplicate Analysis: Satisfactory.**

Spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except pyrene. No action was taken based on this outlier as the associated spike results were within QC limits.

9. **Internal Standards: Acceptable.**

All internal standards (IS) were within $\pm$ 30 seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. **Precision and Bias Determination: Not Performed.**

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. **Performance Evaluation Sample Analysis: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

12. **Overall Assessment of Data for Use**

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical

method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060076
Sample ID: 308397001
Matrix: Soil
Collect Date: 21-JUL-12 09:00
Receive Date: 24-JUL-12
Collector: Client
Moisture: 23.2%

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
1,1'-Biphenyl	U	ND	433	ug/kg	1	JLD1	07/25/12	1712	1232292	1
1,2,4,5-Tetrachlorobenzene	U	ND	433	ug/kg	1					
1-Methylnaphthalene	U	ND	43.3	ug/kg	1					
2,3,4,6-Tetrachlorophenol	U	ND	433	ug/kg	1					
2,4,5-Trichlorophenol	U	ND	433	ug/kg	1					
2,4,6-Trichlorophenol	U	ND	433	ug/kg	1					
2,4-Dichlorophenol	U	ND	433	ug/kg	1					
2,4-Dimethylphenol	U	ND	433	ug/kg	1					
2,4-Dinitrophenol	U	ND	866	ug/kg	1					
2,4-Dinitrotoluene	U	ND	433	ug/kg	1					
2,6-Dinitrotoluene	U	ND	433	ug/kg	1					
2-Chloronaphthalene	U	ND	43.3	ug/kg	1					
2-Chlorophenol	U	ND	433	ug/kg	1					
2-Methyl-4,6-dinitrophenol	U	ND	433	ug/kg	1					
2-Methylnaphthalene	U	ND	43.3	ug/kg	1					
2-Nitrophenol	U	ND	433	ug/kg	1					
3,3'-Dichlorobenzidine	U	ND	433	ug/kg	1					
4-Bromophenylphenylether	U	ND	433	ug/kg	1					
4-Chloro-3-methylphenol	U	ND	433	ug/kg	1					
4-Chloroaniline	U	ND	433	ug/kg	1					
4-Chlorophenylphenylether	U	ND	433	ug/kg	1					
4-Nitrophenol	U	ND	433	ug/kg	1					
Acenaphthene	U	ND	43.3	ug/kg	1					
Acenaphthylene	U	ND	43.3	ug/kg	1					
Acetophenone	U	ND	433	ug/kg	1					
Anthracene	U	ND	43.3	ug/kg	1					
Atrazine	U	ND	433	ug/kg	1					
Benzaldehyde	U	ND	433	ug/kg	1					
Benzo(a)anthracene		402	43.3	ug/kg	1					
Benzo(a)pyrene	U	ND	43.3	ug/kg	1					
Benzo(b)fluoranthene	U	ND	43.3	ug/kg	1					
Benzo(ghi)perylene		126	43.3	ug/kg	1					
Benzo(k)fluoranthene	U	ND	43.3	ug/kg	1					
Butylbenzylphthalate	U	ND	433	ug/kg	1					
Caprolactam	U	ND	433	ug/kg	1					
Carbazole	U	ND	43.3	ug/kg	1					
Chrysene		629	43.3	ug/kg	1					

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060076
Sample ID: 308397001

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
Di-n-butylphthalate	U	ND	433	ug/kg	1					
Di-n-octylphthalate	U	ND	433	ug/kg	1					
Dibenzo(a,h)anthracene	U	ND	43.3	ug/kg	1					
Dibenzofuran	U	ND	433	ug/kg	1					
Diethylphthalate	U	ND	433	ug/kg	1					
Dimethylphthalate	U	ND	433	ug/kg	1					
Diphenylamine	U	ND	433	ug/kg	1					
Fluoranthene	U	ND	43.3	ug/kg	1					
Fluorene	U	ND	43.3	ug/kg	1					
Hexachlorobenzene	U	ND	433	ug/kg	1					
Hexachlorobutadiene	U	ND	433	ug/kg	1					
Hexachlorocyclopentadiene	U	ND	433	ug/kg	1					
Hexachloroethane	U	ND	433	ug/kg	1					
Indeno(1,2,3-cd)pyrene	U	ND	43.3	ug/kg	1					
Isophorone	U	ND	433	ug/kg	1					
N-Nitrosodipropylamine	U	ND	433	ug/kg	1					
Naphthalene	U	ND	43.3	ug/kg	1					
Nitrobenzene	U	ND	433	ug/kg	1					
Pentachlorophenol	U	ND	433	ug/kg	1					
Phenanthrene		2940	43.3	ug/kg	1					
Phenol	U	ND	433	ug/kg	1					
Pyrene		2660	43.3	ug/kg	1					
bis(2-Chloroethoxy)methane	U	ND	433	ug/kg	1					
bis(2-Chloroethyl) ether	U	ND	433	ug/kg	1					
bis(2-Chloroisopropyl)ether	U	ND	433	ug/kg	1					
bis(2-Ethylhexyl)phthalate	U	ND	433	ug/kg	1					
m,p-Cresols	U	ND	433	ug/kg	1					
m-Nitroaniline	U	ND	433	ug/kg	1					
o-Cresol	U	ND	433	ug/kg	1					
o-Nitroaniline	U	ND	433	ug/kg	1					
p-Nitroaniline	U	ND	433	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550C	3550C BNA Soil Prep for 8270D	MXS4	07/24/12	1915	1232290

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3550C/8270D	

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060076
Sample ID: 308397001

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
2-Fluorobiphenyl	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1010 ug/kg	2160	46.9	(24%-106%)
Nitrobenzene-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1120 ug/kg	2160	51.9	(22%-124%)
p-Terphenyl-d14	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1880 ug/kg	2160	86.9	(24%-137%)
2,4,6-Tribromophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	2160 ug/kg	4330	49.8	(23%-124%)
2-Fluorophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1890 ug/kg	4330	43.7	(27%-112%)
Phenol-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"	1720 ug/kg	4330	39.8	(26%-112%)

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Address : 720 Third Ave
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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060077
Sample ID: 308397002
Matrix: Soil
Collect Date: 21-JUL-12 09:15
Receive Date: 24-JUL-12
Collector: Client
Moisture: 23.9%

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
1,1'-Biphenyl	U	ND	438	ug/kg	1	JLD1	07/25/12	1737	1232292	1
1,2,4,5-Tetrachlorobenzene	U	ND	438	ug/kg	1					
1-Methylnaphthalene	U	ND	43.8	ug/kg	1					
2,3,4,6-Tetrachlorophenol	U	ND	438	ug/kg	1					
2,4,5-Trichlorophenol	U	ND	438	ug/kg	1					
2,4,6-Trichlorophenol	U	ND	438	ug/kg	1					
2,4-Dichlorophenol	U	ND	438	ug/kg	1					
2,4-Dimethylphenol	U	ND	438	ug/kg	1					
2,4-Dinitrophenol	U	ND	875	ug/kg	1					
2,4-Dinitrotoluene	U	ND	438	ug/kg	1					
2,6-Dinitrotoluene	U	ND	438	ug/kg	1					
2-Chloronaphthalene	U	ND	43.8	ug/kg	1					
2-Chlorophenol	U	ND	438	ug/kg	1					
2-Methyl-4,6-dinitrophenol	U	ND	438	ug/kg	1					
2-Methylnaphthalene	U	ND	43.8	ug/kg	1					
2-Nitrophenol	U	ND	438	ug/kg	1					
3,3'-Dichlorobenzidine	U	ND	438	ug/kg	1					
4-Bromophenylphenylether	U	ND	438	ug/kg	1					
4-Chloro-3-methylphenol	U	ND	438	ug/kg	1					
4-Chloroaniline	U	ND	438	ug/kg	1					
4-Chlorophenylphenylether	U	ND	438	ug/kg	1					
4-Nitrophenol	U	ND	438	ug/kg	1					
Acenaphthene	U	ND	43.8	ug/kg	1					
Acenaphthylene	U	ND	43.8	ug/kg	1					
Acetophenone	U	ND	438	ug/kg	1					
Anthracene	U	ND	43.8	ug/kg	1					
Atrazine	U	ND	438	ug/kg	1					
Benzaldehyde	U	ND	438	ug/kg	1					
Benzo(a)anthracene		251	43.8	ug/kg	1					
Benzo(a)pyrene	U	ND	43.8	ug/kg	1					
Benzo(b)fluoranthene	U	ND	43.8	ug/kg	1					
Benzo(ghi)perylene	U	ND	43.8	ug/kg	1					
Benzo(k)fluoranthene	U	ND	43.8	ug/kg	1					
Butylbenzylphthalate	U	ND	438	ug/kg	1					
Caprolactam	U	ND	438	ug/kg	1					
Carbazole	U	ND	43.8	ug/kg	1					
Chrysene		384	43.8	ug/kg	1					

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Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060077
Sample ID: 308397002

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatile-GC/MS										
SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"										
Di-n-butylphthalate	U	ND	438	ug/kg	1					
Di-n-octylphthalate	U	ND	438	ug/kg	1					
Dibenzo(a,h)anthracene	U	ND	43.8	ug/kg	1					
Dibenzofuran	U	ND	438	ug/kg	1					
Diethylphthalate	U	ND	438	ug/kg	1					
Dimethylphthalate	U	ND	438	ug/kg	1					
Diphenylamine	U	ND	438	ug/kg	1					
Fluoranthene	U	ND	43.8	ug/kg	1					
Fluorene	U	ND	43.8	ug/kg	1					
Hexachlorobenzene	U	ND	438	ug/kg	1					
Hexachlorobutadiene	U	ND	438	ug/kg	1					
Hexachlorocyclopentadiene	U	ND	438	ug/kg	1					
Hexachloroethane	U	ND	438	ug/kg	1					
Indeno(1,2,3-cd)pyrene	U	ND	43.8	ug/kg	1					
Isophorone	U	ND	438	ug/kg	1					
N-Nitrosodipropylamine	U	ND	438	ug/kg	1					
Naphthalene	U	ND	43.8	ug/kg	1					
Nitrobenzene	U	ND	438	ug/kg	1					
Pentachlorophenol	U	ND	438	ug/kg	1					
Phenanthrene		1880	43.8	ug/kg	1					
Phenol	U	ND	438	ug/kg	1					
Pyrene		1110	43.8	ug/kg	1					
bis(2-Chloroethoxy)methane	U	ND	438	ug/kg	1					
bis(2-Chloroethyl) ether	U	ND	438	ug/kg	1					
bis(2-Chloroisopropyl)ether	U	ND	438	ug/kg	1					
bis(2-Ethylhexyl)phthalate	U	ND	438	ug/kg	1					
m,p-Cresols	U	ND	438	ug/kg	1					
m-Nitroaniline	U	ND	438	ug/kg	1					
o-Cresol	U	ND	438	ug/kg	1					
o-Nitroaniline	U	ND	438	ug/kg	1					
p-Nitroaniline	U	ND	438	ug/kg	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3550C	3550C BNA Soil Prep for 8270D	MXS4	07/24/12	1915	1232290

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3550C/8270D	

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060077
Sample ID: 308397002

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Surrogate/Tracer recovery	**Test**			**Result**		**Nominal**	**Recovery%**	**Acceptable Limits**		
2-Fluorobiphenyl	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			916 ug/kg		2190	41.9	(24%-106%)		
Nitrobenzene-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			950 ug/kg		2190	43.4	(22%-124%)		
p-Terphenyl-d14	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			1360 ug/kg		2190	62.2	(24%-137%)		
2,4,6-Tribromophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			1790 ug/kg		4380	40.9	(23%-124%)		
2-Fluorophenol	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			1490 ug/kg		4380	34.1	(27%-112%)		
Phenol-d5	SW846 3550C/8270D Semivolatile Analysis "Dry Weight Corrected"			1380 ug/kg		4380	31.6	(26%-112%)		

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MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF:

TDDs: 12-05-0006	PANs: 002233.0790.01RA
12-05-0007	PANs: 002233.0791.01RA
12-05-0008	PANs: 002233.0792.01RA
12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of two soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Volatile organic compound (VOC) analysis (EPA Method 8260) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060078 12060079

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on July 23, 2012, and were analyzed by July 26, 2012, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within QC limits.

4. Continuing Calibration: Satisfactory.

All RRFs were within the QC limits. All % differences were within the QC limits except carbon tetrachloride with an increasing response factor in the 7-25 continuing calibration; no action was taken based on this outlier as it was not detected in any sample.

5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

6. System Monitoring Compounds (SMCs): Satisfactory.

All SMC recoveries were within QC limits except bromofluorobenzene in sample 12060078 with a high recovery; no action was taken as there were no associated positive results in sample 12060078.

7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

8. Duplicate Analysis: Acceptable.

Laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

9. Internal Standards: Satisfactory.

All internal standards were within $\pm$ 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts except chlorobenzene in sample 12060078 and chlorobenzene and 1,4-dichlorobenzene in sample 12060079, all with low area counts; associated sample results were qualified as estimated quantities with a low bias (JL or UJL).

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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Certificate of Analysis

Company : Ecology and Environment, Inc.
Address : 720 Third Ave
Suite 1700
Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060078
Sample ID: 308397003
Matrix: Soil
Collect Date: 23-JUL-12 08:30
Receive Date: 24-JUL-12
Collector: Client

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
1,1,1-Trichloroethane	U	ND	0.847	ug/kg	1	JEB	07/25/12	2247	1232783	1
1,1,2,2-Tetrachloroethane	U	ND	0.847	ug/kg	1					
1,1,2-Trichloroethane	U	ND	0.847	ug/kg	1					
1,1-Dichloroethane	U	ND	0.847	ug/kg	1					
1,1-Dichloroethylene	U	ND	0.847	ug/kg	1					
1,2-Dichloroethane	U	ND	0.847	ug/kg	1					
1,2-Dichloroethylene (total)	U	ND	1.69	ug/kg	1					
1,2-Dichloropropane	U	ND	0.847	ug/kg	1					
2-Butanone	U	ND	4.24	ug/kg	1					
2-Hexanone	U	ND	4.24	ug/kg	1					
4-Methyl-2-pentanone	U	ND	4.24	ug/kg	1					
Acetone		15.7	4.24	ug/kg	1					
Benzene	U	ND	0.847	ug/kg	1					
Bromodichloromethane	U	ND	0.847	ug/kg	1					
Bromoform	U	ND	0.847	ug/kg	1					
Bromomethane	U	ND	0.847	ug/kg	1					
Carbon disulfide	U	ND	4.24	ug/kg	1					
Carbon tetrachloride	U	ND	0.847	ug/kg	1					
Chlorobenzene	U	ND	0.847	ug/kg	1					
Chloroethane	U	ND	0.847	ug/kg	1					
Chloroform	U	ND	0.847	ug/kg	1					
Chloromethane	U	ND	0.847	ug/kg	1					
Dibromochloromethane	U	ND	0.847	ug/kg	1					
Ethylbenzene	U	ND	0.847	ug/kg	1					
Methylene chloride	U	ND	4.24	ug/kg	1					
Styrene	U	ND	0.847	ug/kg	1					
Tetrachloroethylene	U	ND	0.847	ug/kg	1					
Toluene	U	ND	0.847	ug/kg	1					
Trichloroethylene	U	ND	0.847	ug/kg	1					
Vinyl acetate	U	ND	4.24	ug/kg	1					
Vinyl chloride	U	ND	0.847	ug/kg	1					
Xylenes (total)	U	ND	2.54	ug/kg	1					
cis-1,2-Dichloroethylene	U	ND	0.847	ug/kg	1					
cis-1,3-Dichloropropylene	U	ND	0.847	ug/kg	1					
m,p-Xylenes	U	ND	1.69	ug/kg	1					
o-Xylene	U	ND	0.847	ug/kg	1					
tert-Butyl methyl ether	U	ND	0.847	ug/kg	1					
trans-1,2-Dichloroethylene	U	ND	0.847	ug/kg	1					

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID: 12060078
Sample ID: 308397003

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL In Solid "As Received"										
trans-1,3-Dichloropropylene	~~U~~	~~ND~~	0.847	UJ ug/kg	1					S4 V1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260B Prep	JEB	07/24/12	1425	1232782

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	5035/8260B TCL in Solid "As Received"	46.7 ug/kg	50.0	110	(80%-124%)
Bromofluorobenzene	5035/8260B TCL in Solid "As Received"	90.7 ug/kg	50.0	214*	(80%-120%)
Toluene-d8	5035/8260B TCL in Solid "As Received"	50.8 ug/kg	50.0	120	(80%-120%)

The Following NCRs have been identified

NCR ID:1104042 Batch ID: 1232783 1. Samples 308397003 and 308397004 did not pass surrogate recoveries.

2. Samples 308397003 and 308397004 did not have acceptable internal standard responses.

MW 8-6-12

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Certificate of Analysis

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Address : 720 Third Ave
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Seattle, Washington 98104
Contact: Mr. Steve Hall
Project: Project No. 4500000347

Report Date: July 27, 2012

Client Sample ID: 12060079
Sample ID: 308397004
Matrix: Soil
Collect Date: 23-JUL-12 08:45
Receive Date: 24-JUL-12
Collector: Client

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
1,1,1-Trichloroethane	U	ND	0.893	ug/kg	1	JEB	07/26/12	2233	1232783	1
1,1,2,2-Tetrachloroethane	U	ND	0.893	ug/kg	1					
1,1,2-Trichloroethane	U	ND	0.893	ug/kg	1					
1,1-Dichloroethane	U	ND	0.893	ug/kg	1					
1,1-Dichloroethylene	U	ND	0.893	ug/kg	1					
1,2-Dichloroethane	U	ND	0.893	ug/kg	1					
1,2-Dichloroethylene (total)	U	ND	1.79	ug/kg	1					
1,2-Dichloropropane	U	ND	0.893	ug/kg	1					
2-Butanone	U	ND	4.46	ug/kg	1					
2-Hexanone	U	ND	4.46	ug/kg	1					
4-Methyl-2-pentanone	U	ND	4.46	ug/kg	1					
Acetone		10.7	4.46	ug/kg	1					
Benzene	U	ND	0.893	ug/kg	1					
Bromodichloromethane	U	ND	0.893	ug/kg	1					
Bromoform	U	ND	0.893	ug/kg	1					
Bromomethane	U	ND	0.893	ug/kg	1					
Carbon disulfide	U	ND	4.46	ug/kg	1					
Carbon tetrachloride	U	ND	0.893	ug/kg	1					
Chlorobenzene	U	ND	0.893	ug/kg	1					
Chloroethane	U	ND	0.893	ug/kg	1					
Chloroform	U	ND	0.893	ug/kg	1					
Chloromethane	U	ND	0.893	ug/kg	1					
Dibromochloromethane	U	ND	0.893	ug/kg	1					
Ethylbenzene	U	ND	0.893	ug/kg	1					
Methylene chloride	U	ND	4.46	ug/kg	1					
Styrene	U	ND	0.893	ug/kg	1					
Tetrachloroethylene	U	ND	0.893	ug/kg	1					
Toluene	U	ND	0.893	ug/kg	1					
Trichloroethylene	U	ND	0.893	ug/kg	1					
Vinyl acetate	U	ND	4.46	ug/kg	1					
Vinyl chloride	U	ND	0.893	ug/kg	1					
Xylenes (total)	U	ND	2.68	ug/kg	1					
cis-1,2-Dichloroethylene	U	ND	0.893	ug/kg	1					
cis-1,3-Dichloropropylene	U	ND	0.893	ug/kg	1					
m,p-Xylenes	U	ND	1.79	ug/kg	1					
o-Xylene	U	ND	0.893	ug/kg	1					
tert-Butyl methyl ether	U	ND	0.893	ug/kg	1					
trans-1,2-Dichloroethylene	U	ND	0.893	ug/kg	1					

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Contact: Mr. Steve Hall
Project: Project No. 4500000347

Report Date: July 27, 2012

Client Sample ID: 12060079
Sample ID: 308397004

Project: ECOL00801
Client ID: ECOL008

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics										
5035/8260B TCL in Solid "As Received"										
trans-1,3-Dichloropropylene	~~U~~	ND	0.893 U	ug/kg	1					S4V/M

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 5035	5035/8260B Prep	JEB	07/24/12	1431	1232782

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8260B	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	5035/8260B TCL in Solid "As Received"	43.3 ug/kg	50.0	97.0	(80%-124%)
Bromofluorobenzene	5035/8260B TCL in Solid "As Received"	53.7 ug/kg	50.0	120	(80%-120%)
Toluene-d8	5035/8260B TCL in Solid "As Received"	48.9 ug/kg	50.0	110	(80%-120%)

The Following NCRs have been identified

NCR ID:1104042 Batch ID: 1232783 1. Samples 308397003 and 308397004 did not pass surrogate recoveries.

2. Samples 308397003 and 308397004 did not have acceptable internal standard responses.

MW 8-6-12

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 6, 2012

TO: Steve Hall, START-3 Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, Avery Landing Site, Avery, Idaho**

COC: 12-05-0006-22

REF:

TDDs: 12-05-0006	PANs: 002233.0790.01RA
12-05-0007	PANs: 002233.0791.01RA
12-05-0008	PANs: 002233.0792.01RA
12-05-0009	PANs: 002233.0793.01RA

The data quality assurance review of 2 soil samples collected from the Avery Landing Site (consisting of the Avery Bentcik, Avery IDOL, Avery FHWA, and Avery Potlatch sites) located in Avery, Idaho, has been completed. Polychlorinated Biphenyl (PCB) analysis (EPA Method 8082A) was performed by GEL Labs, Inc., Charleston, South Carolina. All sample analyses were evaluated following EPA's Stage 2 Data Validation Manual Process (S2VM) and/or Stage 4 Data Validation Manual Process (S4VM).

The samples were numbered: 12060076 12060077

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained at < 6°C. The samples were collected on July 21, 2012, extracted on July 24, 2012, and were analyzed by July 26, 2012, therefore meeting QC criteria of less than 7 days between collection and water sample extraction (14 days for soils) and less than 40 days between extraction and analysis.

2. Instrument Performance: Acceptable.

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was ≤ 0.3% for capillary column analyses.

3. Initial and Continuing Calibration: Acceptable.

All initial calibration relative standard deviations (RSDs) were within QC limits. All continuing calibration % differences (% D) were within QC limits.

4. **Error Determination: Not Provided.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. **Blanks: Acceptable.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in any blanks.

6. **Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

7. **System Monitoring Compounds (SMCs): Acceptable.**

All recoveries of the SMCs were within the established control limits.

8. **Blank Spike: Acceptable.**

Recoveries of all spiked analytes were within the appropriate control limits except when outside limits due to dilution and matrix interference.

9. **Duplicates: Acceptable.**

Relative Percent Differences (RPDs) of all spiked analytes were within the required control limits.

10. **Compound Identification: Acceptable.**

All results were dual-column confirmed with differences between the columns less than 25%.

11. **Target Compound Quantitation and Quantitation Limits: Acceptable.**

Sample results and quantitation limits were correctly calculated.

12. **Laboratory Contact**

No laboratory contact was required.

13. **Overall Assessment**

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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Certificate of Analysis

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID:	12060076	Project:	ECOL00801
Sample ID:	308397001	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:00		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.2%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB										
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"										
Aroclor-1016	U	ND	21.6	ug/kg	5	JXM	07/26/12	1007	1232183	1
Aroclor-1221	U	ND	21.6	ug/kg	5					
Aroclor-1232	U	ND	21.6	ug/kg	5					
Aroclor-1242	U	ND	21.6	ug/kg	5					
Aroclor-1248	U	ND	21.6	ug/kg	5					
Aroclor-1254	U	ND	21.6	ug/kg	5					
Aroclor-1260	U	ND	21.6	ug/kg	5					
Aroclor-Total	U	ND	21.6	ug/kg	5					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	07/24/12	1814	1232182

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.01 ug/kg	8.65	57.9	(25%-112%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	5.73 ug/kg	8.65	66.2	(19%-130%)

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Contact: Mr. Steve Hall
Project: **Project No. 4500000347**

Report Date: July 27, 2012

Client Sample ID:	12060077	Project:	ECOL00801
Sample ID:	308397002	Client ID:	ECOL008
Matrix:	Soil		
Collect Date:	21-JUL-12 09:15		
Receive Date:	24-JUL-12		
Collector:	Client		
Moisture:	23.9%		

Parameter	Qualifier	Result	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-PCB										
SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"										
Aroclor-1016	U	ND	21.8	ug/kg	5	JXM	07/26/12	1022	1232183	1
Aroclor-1221	U	ND	21.8	ug/kg	5					
Aroclor-1232	U	ND	21.8	ug/kg	5					
Aroclor-1242	U	ND	21.8	ug/kg	5					
Aroclor-1248	U	ND	21.8	ug/kg	5					
Aroclor-1254	U	ND	21.8	ug/kg	5					
Aroclor-1260	U	ND	21.8	ug/kg	5					
Aroclor-Total	U	ND	21.8	ug/kg	5					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3541	Prep Method 3541 PCB Prep Soil	AXV1	07/24/12	1814	1232182

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 3541/8082A	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
4cmx	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.53 ug/kg	8.74	51.9	(25%-112%)
Decachlorobiphenyl	SW846 3541/8082A PCB Solid Automated Soxhlet "Dry Weight Corrected"	4.97 ug/kg	8.74	56.9	(19%-130%)

Q-342